

REMARKS:

The present invention, briefly, relates to an electric motor for use in areas of limited volume. Specifically, it is adapted especially for use within automotive fuel tanks where installation of the mechanism must be effected through an opening of a standardized and limited size. The motor of the fuel pump comprises a plurality of laminates and carbon brushes which are axially prestressed against the ends of the laminates. It is to be noted that both the laminates and the carbon brushes have trapezoidal cross sections and that the narrower end of the trapezoid is located adjacent to a centrally located shaft 12 which is connected to pump vanes effecting fuel flow.

Claims 1 to 3 were rejected under 35 U.S.C. 102(b) as anticipated by Yamada (EP 1 091 473 A2). Claims 4 and 5 were rejected under 35 U.S.C. 103(a) in view of Yamada and in view of Raad (6,578,681). Additionally, the drawings were objected to because of lack of disclosure of the subject matter contained in claim 3. In this regard, claim 3 has been cancelled from the application so that reconsideration of the objection to the drawings is requested.

Yamada discloses an electric motor for home appliances or an electric power steering device (para. 0004). The brushes are radially prestressed by springs on the commutator. The radial orientation of the brush-spring-spring-stop-group leads to the requirement that the motor be constructed with a large diameter. An electric motor necessitating use of a large diameter is unacceptable for use as the driving means in an automotive fuel pump.

The Katoh et al. reference discloses an electric motor in which the brushes are axially prestressed on a commutator. Each brush is formed by two layers. A stacked

brush is expensive to manufacture and mount, for this reason the Katoh structure would not be normally considered by a person skilled in the art for use in applicants' environment. A combination of a stacked brush in a radially prestressed orientation requires a contact surface of the brush with a small radius of curvature. A small radius is necessary to reach a sufficient strength of the stacked brush construction. The disadvantage of a small curve in the region of the contact surface is a big diameter of the collector and of the electric motor.

A fuel pump is normally arranged in a reservoir of a fuel supply unit, as noted above. The fuel supply unit must be mounted in the fuel tank through a standardized opening, thus making it important to create a fuel pump with a small diameter in order to reach a high volume of fuel in the reservoir. For this reason, the orientation of the brush in Yamada and the layered structure of the brush in Katoh are facts to keep a person normally skilled in the art from a combination of both documents.

Katoh further describes a shape of the brushes that corresponds to the shape of the segments (col. 6, lines 60-63). The shape of the brushes differs from the shape of the segments, as shown in Figs. 7, 8a and 8b. The segments have a curved shape and the brushes have a linear shape or *vice versa*.

Claim 1 of the present application has been amended to include the limitations of claim 5 and claims 3 and 5 are cancelled from the application. It is submitted that claim 1, as amended to include the limitations of claim 5, is novel and is, therefore, patentable over the art cited and applied by the Examiner.

With the amendments to the claims, as well as for the reasons set forth, it is submitted that the application is in condition for allowance, formal notice of which is respectfully requested.

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Respectfully submitted,



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